

Frequently Asked Questions Regarding Cassini Launch



What is the probability of a launch accident?

- The expected probability of any type of launch (i.e., launch through spacecraft ejection from Earth orbit) accident for the Titan IV/Centaur is about 1 in 20; that is, on the average, 1 accident would be expected for every 20 Titan IV/ Centaur launches.
- However, only 1 in 500 Titan IV/Centaur launches are expected to result in an accident that releases small amounts of plutonium dioxide to the environment.
- In those accidents where there is a release, the radiation doses that are expected to result in the exposed population would be very low (less than one millirem over 50 years) and are not expected to result in any fatalities.

What is the probability of an accident between launch and leaving Earth orbit that might release plutonium?

While it is estimated that the probability of a Cassini launch failure is about 1 in 20, most failures would not result in a release of plutonium. Though more detailed assessments are underway, initial estimates are that about 1 in 25 Titan IV/Centaur failures could result in releases of small quantities of plutonium dioxide to the environment. It is possible that there could be small releases of plutonium dioxide particles from some RTG components, but if the components strike water there would be no release. None of the releases are

expected to result in any cancer fatalities in the exposed population.

If the Cassini spacecraft had been: on the Titan IV that failed during launch on August 2, 1993, at Vandenberg; or on the Space Shuttle Challenger when it failed, what would have happened to the RTGs?

Neither of these launch accidents would have been expected to result in a release of fuel from the RTGs had the Cassini spacecraft been onboard. Years of extensive safety testing and analyses have demonstrated that RTGs are extremely rugged and resistant to a release of the plutonium dioxide fuel, even in severe accident environments.

Since 1965, when RTGs were built to ensure that they would not release radioactive material, there have been two accidents (1968 NIMBUS-B satellite launch and 1970 Apollo 13 lunar module reentry) where RTGs were on-board spacecraft. Neither of these accidents were caused by the RTGs. In both accidents, the RTGs responded to the accident conditions as their design and testing had predicted, and the plutonium was fully contained.

For more information on the Cassini mission, please contact:

**Cassini Public Information
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, CA 91109
(818) 354-5011**